DOCUMENT RESUME

ED 121 424 PS 008 454

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TITLE Measuring Shifts in Play and Expressive Behavior in Nursery School.
PUB DATE 73
NOTE 48p.; Tables and examples have been filmed from best available copy

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage
DESCRIPTORS *Affective Behavior; *Behavior Change; Behavior Rating Scales; Classroom Observation Techniques; Longitudinal Studies; *Play; *Preschool Education; *Social Relations; Video Tape Recordings

ABSTRACT

The changes in preschool children's effective play, affective involvement, and social interaction across a 6-month period of nursery school attendance were examined. Videotaping of the children's activities was done in January/February (pretesting) and May/June (posttesting). The result was a total of approximately 40 hours of tape covering many aspects of the children's day in school. The taping strategy involved 15-minute random order time sampling of various settings within the school such as the block area, family life area, sand play area, and slide area. Each child in a particular setting was rated on the level of his play (examination, repetition, combination, transformation), the level of his affective involvement (distractible, engrossed), and his level of social interaction (solitary, associative, exchange). These individual ratings were then combined to generate overall scores for each setting which were analyzed for pre-post differences. The changes across time for each setting are discussed, interpretations are offered, and some suggestions for change are made. (JMB)

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Measuring shifts in play and expressive behavior in Nursery School

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PS 008454

Summarized in "Evaluation Report for the Block School for Preschool Children, 1972-1973 " submitted by the Psychological Corporation to the New York City Board of Education, March, 1973

Function No 67-33601(3ED 941) pp 13-17

Introduction

The voluntary behavior in which we were interested could be classed into one of the following four broad phases of behavior. Children were observed examining carefully the object or scene or other person and selecting the responses from their own repertoire that seem most adequate (carefully examining a toy bucket). Or they were seen to repeatedly handle the object or respond to the other person in a particular way showing by their repetition some sense that they had mastered the right way with this object (filling with water, pouring water out). Thirdly, and of a more complex order they were observed to combine their response to this object with other responses to it (using bucket to fill a hole in sand), or combine this object with others. Finally, they might transform their response in terms of pretence, (so that bucket pouring is putting ice on a cake). This description of the phases of play activity is derived from the current work on the boundaries between exploration and play in the work of Berlyne, Welker, Hutt, Collard, etc. While it is customary amongst those researchers to consider the sequence as a temporal one, there is no assurance that it always occurs in that order. Children often suspend a transformational operation for momentary examination, etc. Again, any of these operations may pop up relatively discontinuously with contextual events. For example, when playfulness and laughter erupt, they are undoubtedly instigated by some current event, but they may not otherwise be structurally related to the contemporary contingencies. Again, while it has been habitual to think of an exploration sequence in which there is first examination, then repeated responses, followed by habituation, there has not been much work on the constituents

that occur when the sequence goes through all four phases of examination, repetition, combination and transformation. Nor do we know whether in the latter case, the first two phases are a different sort of phenomena entirely. It seems probable that the greater the strangeness and anxiety associated with a setting, the more the child would move from the quick examination of one phenomenon to another. The child who is in familiar surroundings, by contrast, perhaps begins the four step play sequence relaxed from the beginning because there is nothing else to distract him from his voluntary pursuit of the variations potential in his object or person focus. Whatever the case, in the present sample most of our observations were of the latter phases, combinatory and transformational play.

Within this description of the play process we found it possible to make further differentiations according to whether the observers focus was upon an object, upon himself, or upon his relationship to another imagined person. We chose to name these differentiations in focus in the traditional terms, exploration, testing and imitation. In exploration the child is examining, mastering, combining and transforming objects. His emphasis is on what things can do and how they work. In testing, the child is asserting something about himself. He is saying I can do it, and he examines, masters, combines and transforms his competences in those terms. Balancing, climbing and jumping are good examples. In imitation he is asserting something about his relationship to others. I am like Mommy, she says. Each of these three types of play has in turn more complex forms which can also be distinguished. In the case of testing and imitating, the addition of other persons constituted the additional requirement. Thus testing against others becomes contesting. And imi-

tation involving others in roles also, becomes sociodrama. The more complex stage of exploration was harder to define because it did not need to involve others (though it usually did). This was world construction, where the player not only transformed objects into pretence phenomena, but had them working together in an envisaged system. That is, he was playing at having a city, or a building construction, or a fire brigade, etc.

Examples:

Setting: Sandplay

Levels and Examples

Examines - comes in, looks around, manipulates or leaves

Mastery - filling and emptying pitcher over and over again

Combination - sprinkling sand out of pitcher, pouring sand from one pitcher to another, emptying by hitting the bottom of the pitcher

Transformation - saying the pitcher is a "steam shovel" and that you are digging into a "mountain"

Setting: Blocks

Examines

Mastery - trying to make a bridge

- finding a toy that will fit under a bridge of blocks

- pushing a toy boat under bridge

Combination - make a house of blocks

- making variations on a bridge

Transformation - This is "our" house; Don't touch the "window". This is the "door".

Setting: Family Life

Examines

Mastery - washing dishes, pouring water from kettle

Combination - serving, pouring liquid; dressing & undressing doll, cleaning up kitchen

Transformation - riding in a "car"; call "mother" to one child in a "baby" voice; dialogue "you are under arrest" while wearing policeman

Setting: Water Play

Examines

Mastery - filling and emptying water with bottle, funneling, offers drink to teach - "want water"; spooning water to own mouth; shaking liquid out

Combination - squeezing water from bottle into air; collecting suds into pitcher; squeeze bottle into a funnel

Transformation - "We are making chocolate mix - some food".
"Let's mix our food" - pretends to taste it
"My baby is making pee-pee"
"Let my baby kiss you then!"
"Hey, you want some cool-aid"
"cough medicine" and pretends to take it

Setting: Telephone

Examines

Mastery - repeating of things you can do: put to ear, dial, speaking into, picking it up

Combination - doing all of above

Setting: Telephone (continued)

Transformation - doing all of above in sequence with attitude that child is "calling" perhaps dialogue and child may even provide response dialogue; ex. "I'm here do you want me to come over";Yes, oh good, I'll be right over"

Further examples of the different levels of play in different settings are available on our data collection and score sheets which we are retaining in our files.

Method

The Time Sampling Sheet ("Table 1" and "Method") indicates the different areas that were sampled. These areas were divided into these particular 15 settings following the architects floor plan (Table 2) of the School. The sub-categories represent the different activities observed in the settings. Some changes were made in these settings during the year. The math area was not enclosed as such and became part of the block area. The typewriter and water tub were moved from one area to another rather than remaining stationary. The Family Life Area was increased with the addition of a "Store" in Area 6 -- against the wall of the hallway. Table 3 presents the time schedule of a day's activities. Children were taped during the "free movement" periods and the masse and movement organized activities.

BLOCK SCHOOL (TIME SAMPLING)

DATE_____

TABLE 1

TIME_____

ACTIVITY_____

	#Children	SEX M/F	Adults	Activity (description)
1. Cubbies				
2. Bathroom				
3. Lunch Room				
4. Entrance Hall				
5. Rest Area: Bed & Books				
6. Steps				
Activity 1				
Activity 2				
Activity 3				
7. Math Area				
8. Block Area Ladder				
9. Language a. Typewriter				
b. Piano				
c. Books				
10. Conversation Pit				
11. Crafts: Fine Hand Move.				
12. Family Living a. Cooking b. Dressing Up c. Table d. Pillowed Wall e. "House"				
13. Art a. Easel b. Sink c. Tables-"Easel" "Family"				
14. Science a. Sandboxes-Large Small b. Animals c. Plants. d. Tables				
15. Movement a. Carpentry b. Block Chairs c. Tables d. Slide-Top Under e. [illegible] f. Gym Equipment				

TABLE 2

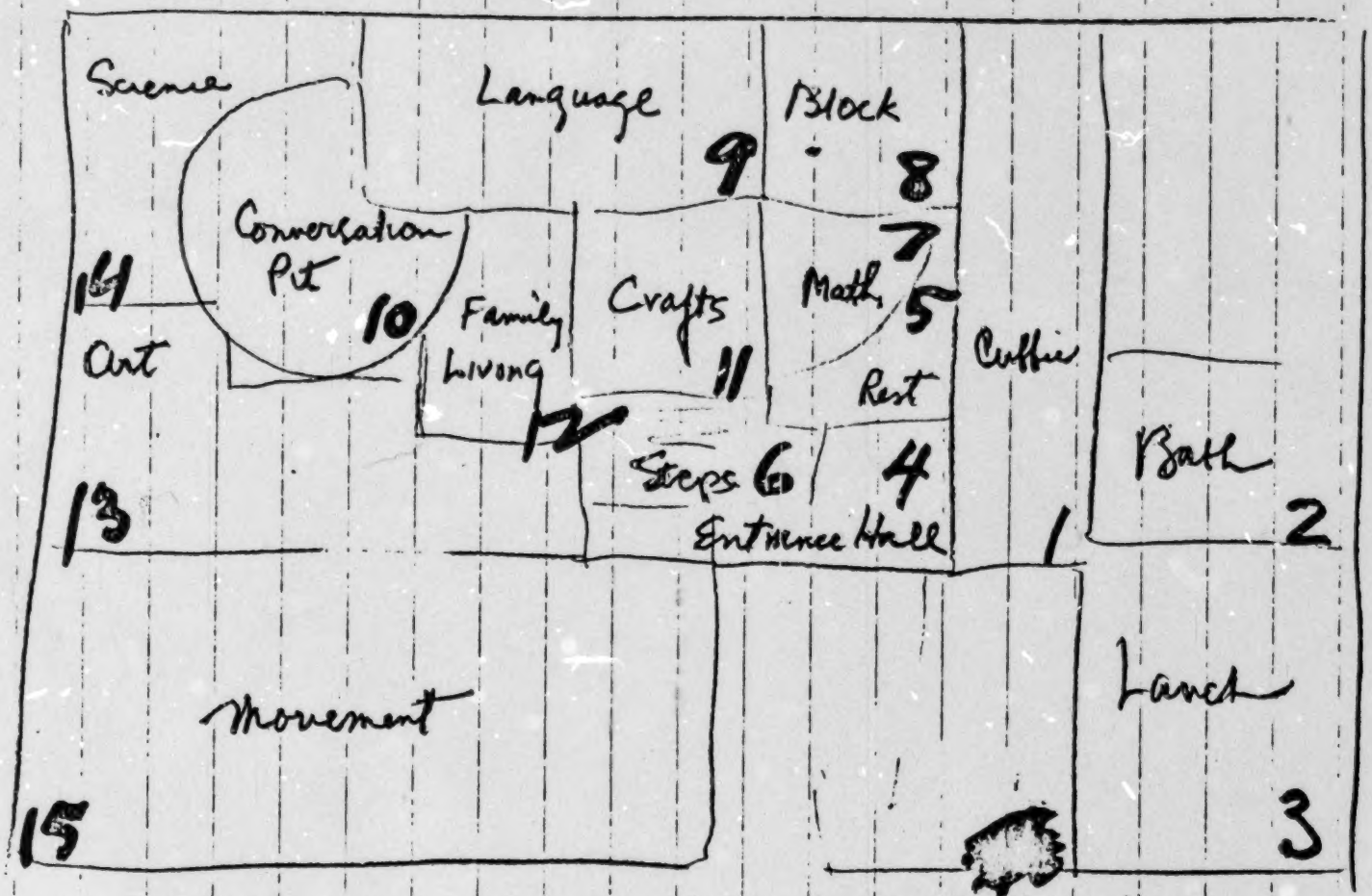

Science
Language
Block
9
8
7
Conversation Pit
16
10
Family Living
Crafts
Math
5
Art
11
Rest
Coffee
12
Steps
6
4
Bath
13
Entrance Hall
1
2
Movement
Lunch
15
3

Table 3.

Days Activities

9	attendance, name recognition, quiet time
9:15	finger play, song play, discussions, seriation
9:30	(specials mentioned)
9:45	
10	
10:15	free movement - "specials", individual sessions
10:30	
10:45	
11	milk and snack (original groups)
11:15	
11:30	free movement - "specials", individual sessions
11:45	
12	
	½ children lunch (12-12:25)
12:15	
	¼ children creative movement
12:30	
	¼ children music
12:45	
1	

Table 4

Observational Time Samplings

January 28 - February 15 - 1972

Time	
9-10	4
10-11	6
11-12	17
12-1	Music, Movement & Lunch

Settings

When settings only appear in either pre or post, either theoretical frequencies are less than 5, testing naturally it is not possible to do a statistical analysis to determine change. In these cases, the data collection sheets (in the appendix for all settings) will serve as a descriptive account of the areas. An attempt has been made to briefly summarize this information.

See: Sampling

Sampling

Originally we had hoped to sample randomly across children. Unfortunately the equipment purchased by the Block School was fixed tripod equipment rather than portable equipment. In addition the terrain at the Block School and the many partitions renders quick movement of the camera difficult. We settled, therefore, for a strategy of setting sample. The difficulty here is that there has been no fixed parameters for population distribution. So called free periods are not really free as they are being constantly affected by teacher interventions for other purposes. For this reason, activities in particular settings are often zero. We moved therefore to a strategy of first sampling by observation of the frequency of occurrence of children and teachers in all settings. The enclosed sheet will indicate the 15 groupings of settings to which we paid attention; the sub-settings within some of these indicates that we are currently scoring within approximately 50 settings.

These observational samplings were taken between the 14th of January and the 18th of February, which is the period of time we intend to use as our base time unit for the present study. A sum of 27 observational samplings of the frequency of children and adults across all settings and all times of day and week, yielded us a statement of the frequency of setting usage (Table 5).

Pre Pre Test

The tapes on the period prior to the January-February month indicate a period of habituation, territorial behavior, etc., which seem more relevant to the stress involved in coming to such a new setting than a reliable indicator of ability to function within this setting.

Table 5

Frequency of Setting Usage

(using Time Sampling Observation)

Area	# of Children	# of Adults
1	4	0
2	3	3
3	4	2
4	15	7
5	6	4
6	34	20
7	2	1
8	17	5
9	9	6
10	11	5
11	1	1
12	24	7
13	29	16
14	23	11
15	44	15

Explanation of the Sampling and Scoring

(1) by settings (why: not Ss camera immobility and children's movement from setting to setting)

(2) problem of repeated measurements

(3) use random order time sampling (15 min. per setting) of different settings. Score each child at his highest level of performance although recording descriptively all levels of performance. A child was only scored once for his performance in a particular setting (See score sheets, Tables 6 and 7)

(4) Scores represent # of Ss at that level (1-4) in the particular setting over the pre and/or post testing period (Pre: Jan, Feb, and Post: May, June)

Child L's -

Ellen Jones Glass

Boys

RAPID-SCANNING
employs materials in a desultory fashion,
manipulates toys in a way not relevant to
the theme

RETENTION-HAZARDING
part, segmental, fragmental

COMBINATIONS
(serial, partial, sequential
combines objects in more complex ways

TRANSFORMATION
symbolic imaginative fantasy.

17

	EXAMPLES:	# of Ss observed in Category
Solitary- away from others whether in play or not		
Parallel- plays along side of others freely		
Associative- associates with others comments, sharing, helping		
Exchange- active sharing and exchange throughout		
Co-operation- with role reciprocity		

COMMENTS:

AFFECT	EXAMPLES:	# of Ss observed in Category
Passive- withdrawn, unwilling to participate, fearful		
Onlooker- active but not a participant		
Active- engrossed in activity		
distractible- goingin and out of play		
Pleasurable- moments of expressions		

POWER TACTICS	Boys			Girls		
	Physical	Verbal	Strategy	Physical	Verbal	Strate
supplication						
inclusion-exclusion						
attack						
authority-dominance						

# of Ss' Scored by Setting and Sex

		Pre									Post								
		Boys				Girls					Boys				Girls				
	(Levels)	1	2	3	4	1	2	3	4	Total	1	2	3	4	1	2	3	4	Total
	Settings																		
	Waterplay	--	11	2	2	--	2	4	--	21	--	--	1	2	--	1	3	5	12
8	Blocks	4	8	--	1	2	1	2	--	18	2	--	4	8	--	9	4	--	13
12	FamilyLife	5	2	--	2	3	5	3	1	21	1	2	--	4	2	2	4	6	14
14	SandPlay	4	6	2	1	2	3	--	2	20	--	4	--	2	1	3	--	3	13
15	Slide	--	--	6	2	--	2	1	--	11	--	2	11	4	--	3	7	2	29
	Typewriter	--	--	--	--	--	2	--	--	2	--	--	--	--	--	--	--	--	--
4	Entrance	--	3	--	2	2	--	2	--	9	--	--	--	--	--	--	--	--	--
5	Changed Steps:																		
6	General	1	2	--	--	1	4	--	--	8	1	5	--	1	1	9	3	1	21
	Store (new)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1
7	Changed																		
9	Language	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	--	2
10	Conv.Pit	--	--	--	--	--	--	--	--	--	2	2	--	1	--	7	2	1	15
11	Changed																		
13	Art: work collected																		
15	Movement area General	--	--	--	--	--	3	3	--	6	--	--	--	2	--	--	--	3	5
	Woodwork (new)	--	--	--	--	--	--	--	--	--	--	4	1	--	--	1	--	--	6

RESULTS

Only areas 8, 12, 14, 15 and water play provided high enough frequencies (after approximately 40 hours of pre and post taping) for chi square analysis. In some cases, the new areas only represent pre or post, in other cases the frequencies are simply too low. Boys and girls categories have been collapsed in analysis because of low frequencies. However, Table 7 describes the Pre and Post number of subjects scored by setting and sex. Table 8 indicates that the taping time on Pre and Post testing was comparable. The Typewriter, Store and language areas indicate extremely low frequencies. All of these areas are in trafficked spaces; the typewriter is between the language and conversation pit, the store in the very trafficked main hallway in front of the "steps" area, the language area is the connection between the conversation put and the block area. Children are easily distracted and these are areas which do not have enough enclosure to sustain the attention of children who must play there with the distraction of constantly moving bodies. The store, for example, was enjoyed by children, but there was low level play and social interaction and high distractability. If it had been placed in the old math area which is enclosed, we predict it would be very successful. The environmental placement of a setting seems to be very important. Also many times children seem to be directed into organized activities before they have an opportunity or just as they begin to become involved.

Children were not observed in the entrance area which has puzzles and a climbable "elephant" during the post period. Perhaps there was less of a concern for being close to the "exit" area as the children became accustomed to the surroundings. There were many fewer children aimlessly lingering in the public area as there had been in the pre-testing. Although our focus was self-sustained activities, the activities that took place on

the steps area were so sporadic (again this is a heavily trafficked and therefore distractable area) and temporary that most of the lack of shift can be attributed to this. The same statement applies to the General Movement area, Conversation Pit, and Woodwork were used only in pre or post periods. The use of the pit went down as its intrique and differentness wore off. In the beginning of the term, teachers seemed to favor it quite a bit. Perhaps the novelty wore off or the structure itself might be considered uncomfortable by the teachers. Or perhaps it has been labeled for the "music session" and due to some rigidity in space usage, it is not used. The children seem to go there in small groups and use it for physical activities (running around rims, jumping, cuddling, etc.). When an adult appears in this area, children look at them as if they are not sure that it is permissable for them to be laughing, jumping and having fun. This may be a reflection of their homes or the school--it is difficult to say.

For settings 8, 12, 14, 15 and waterplay X^2 with degrees of freedom = 1 were calculated. The four categories are pre and post and Levels 1-2 and Levels 3-4. Level 1 is Examination, 2 Repetition Mastery, 3 Combination and 4 Transformation.

As Table 9 indicates the areas of Blocks, Family Life and Waterplay show a significant shift from levels 1-2 in pre-testing to levels 3-4 in post testing. The Slide activity was high to begin with and there was no higher shift. One reason that this setting did not increase might be the fact that teachers felt too many children wanted to use it and therefore, its use was curtailed. Teachers "opened" and "closed" it for use and gave out tickets and had children form "lines" for its use. We were prepared to add sub categories to our Transformation category, but we found it unnecessary. The lack of shift on the slide is not due

Table 8

Pre and Post Observation Time (scorable video time)

(No.)	Settings	Pre Time (mins)	Post Time (mins)
	Waterplay	40	35
8	Blocks	31	30
12	Family Life	30	35
14	Sand Play	30	35
15	Slide	30	40
	Typewriter	10	moved location always empty
4	Entrance	always empty	10
6	Steps:		
	General	20	25
	Store	non-existent	25
9	Language	always empty	10
10	Conversation Pit	always empty	25
13	Art Easel	collection of paintings	same
15	Movement Room		
	General	30	10
	Woodwork	always empty	15

Table 9

Pre and Post X^2: # of Ss in Each Setting at Highest Level (w df = 1)

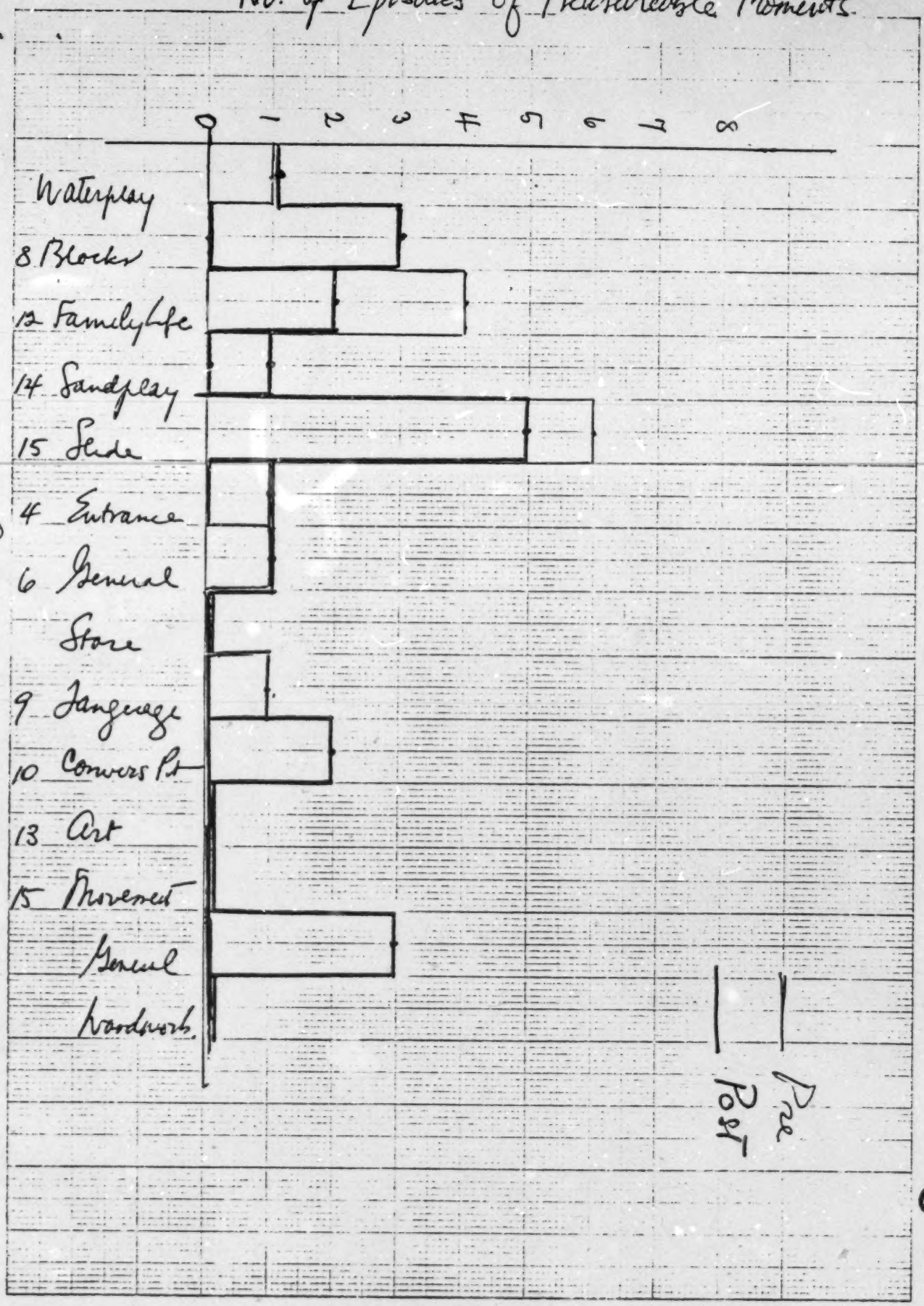
	Pre		Post			
Setting	Level 1-2	Level 3-4	Level 1-2	Level 3-4	Significance Level*	X^2*
Slide	2	9	5	24	ns	.1750
Sandplay	15	5	8	5	ns	.188
Blocks	15	3	11	16	.01 *	22.85
Family	15	6	7	14	.05 *	4.67
Water	13	8	1	11	.01 *	6.90

* - significance

ns - not significant

*X^2_{05} = 3.85 w. 1 df

X^2_{01} = 6.64 w 1 df



"THE CHAMPION LINE" NO. 820-3
CROSS SECTION - 20 SQUARES TO INCH

to a ceiling effect, therefore . Sandplay was at a low level and did not move. This was an area in which there was very little productive teacher interaction with children except to praise a child when he desired to show his teacher his product. This is also an area which is not very well understood nor explored at early childhood education. Perhaps teachers should be exposed to the scoring system used in this evaluation since it might give them an idea of the levels involved and therefore, a goal to which they might facilitate growth towards.

Children were scored for their affective level of involvement. Whenever a child found a particular activity especially enjoyable--laughter, joyous jumping, gleeful sounds, etc., he was scored as having a pleasureable moment. Table 10 presents a summary of these episodes. Although there is obviously not an important difference in the number of episodes, there are more episodes in more settings in the post testing. There are 12 in the pre and 20 in the post testing.

Children were scored for their affective behavior. As Table 7 indicates, the categories used in evaluating this type of behavior are the following: "passive" - withdrawn, unwilling to participate, fearful; "onlooker" - active but not a participant; "active distractable" - going in and out of play; "active engrossed" in activity. The categories of Onlooker - "passive" and onlooker "active" is Category 1; Active Distractable is Category 2; and Active Engrossed, 3. There are separated in sex differences categories. The frequencies of affect in the categories after Typewriter on Table 11 are so low that no generalization can be made concerning them. One is forced to wonder, as in the Play categories of Table 7, why these frequencies are so low over 40 hours of taping. Table 12 indicates the X^2 results for the categories with frequencies high enough to be considered. These are Slide, Sandplay, Block, Family

and Waterplay. Categories 1 and 2 were collapsed with the rationale that these were all the lower level affect categories, and these were tested ag. category 3 the higher level of affect development.

There is significant difference in pre and post test use of higher and lower affect categories. This means that the children did not move toward being more engrossed in these activities, but that onlooker and active yet distractable behavior was still evidenced in the post test. In almost all cases the trend was toward higher level activity. When Blocks, Water and Family are collapsed, the affect level is sig. at an .01 level. In areas where children show higher level play, the affect level is in the direction of higher level activity even if not significant. This trend is not present in the Sand and Slide settings which also did not achieve significance in the play behavior levels.

Table 11

Affect Scale

	Pre						Post					
	B			G			B			G		
	1	2	3	1	2	3	1	2	3	1	2	3
Water	2	6	2	1	4	2	2	-	2	-	2	7
8	5	4	7	4	-	-	-	-	11	-	4	10
12	8	4	7	-	-	-	6	1	4	-	3	3
14	2	11	5	1	4	3	-	3	2	-	3	3
15	1	3	13	-	-	-	-	-	8	-	2	1
Type	-	-	-	-	2	-	-	-	-	-	-	-
4 Entr.	-	-	-	-	-	-	-	-	8	2	-	2
6 Steps	-	-	-	-	-	-	-	-	-	-	-	-
Gen.	-	-	2	1	2	4	-	2	1	-	1	2
Store	-	-	-	-	-	-	-	8	-	-	1	-
9 Lang.	-	-	-	-	-	-	-	8	-	-	1	-
10 C. Pit	-	-	-	-	-	-	-	3	3	-	2	8
13 Art Col.	-	-	-	-	-	-	-	-	-	-	-	-
15 Move.	-	-	-	-	-	-	-	-	-	-	-	-
Gen.	-	-	-	-	3	3	1	-	3	-	3	1
Wood.	-	-	-	-	-	-	-	2	3	-	-	1

*Categories: 1 Onlooker (Active, Passive)

2 Active Distractable

3 Active Engrossed

Table 12

Pre and Post X^2: # of Ss in Each Affective Category

Setting	Pre level 1-2	Pre level 3-4	Post level 1-2	Post level 3-4	Significance level	X^2
Slide	4	14	2	9	ns	
Sandplay	18	8	6	5	ns	
Blocks	13	7	4	21	ns	
Family	12	7	10	15	ns	
Water	13	4	4	9	ns	
B - F - W	38	18	18	45	*	18.36
Sand, Slide	22	22	10	16	ns	< 1
All Collapsed	38	18	18	45	.01*	18.36

* - significant

ns - no significance

Table 7 indicates the levels of social interaction as follows: "solitary" - away from others whether in play or not, "parallel" - plays along side of others freely; "associative" - associates with others (comments, sharing, keeping), "exchange" - active sharing and exchange throughout; "co-operation - with role reciprocity. Table 13 indicates the number of Ss in each category. As in all of the other descriptive tables and as indicated in the Method section, for play, affect and social there is no repetition of measurement on the same S. Again this descriptive table is presented with sex differences and uncollapsed categories. Category 1 is the "solitary" and "parallel"; 2 is the associative and 3 the exchange. Since the frequencies were low Category 2 - associative was collapsed with 3 on the reasoning that these were social exchange categories compared to the more primative solitary and parallel categories.

Sandplay and waterplay by the fashion in which they are set up illicit social participation although as the affect scale statistics indicate, the interaction may be at a higher level and still be at an elementary level in affective terms. It is especially interesting to find significantly more social interaction at level 2-3 in the post test in Sandplay since this setting produced the lowest shift in play and affect. (See Table 14). Perhaps the fact that there was not much adult interference and that this setting was relatively isolated promoted more interaction. It is our hunch that settings such as the conversation pit and the Rest Area (#5) would promote the same sort of behavior if they were properly and interestingly equipped and if children were allowed free access to them. The beginnings of this were noted earlier when discussing the new uses of the Conversation Pit. It is also possible from these results that development in the children's own social interaction must precede movement upward in cognitive and affective categories.

In the three areas, Slide, Sand, and Family Life where the results were not significant, all show trends toward use of higher level activities, but the shift is insufficient for statistical significance.

Table 13

Social Scale: # of Ss in Each Category

	Pre						Post					
	Boys			Girls			Boys			Girls		
	1	2	3	1	2	3	1	2	3	1	2	3
Water	11	2	2	5	--	--	1	2	2	2	1	5
8	11	7	2	2	-	-	3	3	10	1	9	6
12	10	5	1	-	-	-	3	1	2	7	3	10
14	11	4	2	6	-	2	1	1	3	2	2	3
15	6	1	-	3	-	-	-	3	3	2	1	-
Typers	-	-	-	-	2	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	3	2	.2	-	2
6	-	-	-	-	-	-	-	-	-	-	-	-
Gen	2	-	-	7	-	-	2	-	-	-	-	3
Store	-	-	-	-	-	-	-	1	-	-	1	-
9 Lang.	-	-	-	-	-	-	-	-	2	-	-	-
10 C.Pit	-	-	-	-	-	-	-	-	3	1	2	8
13	2	-	-	3	-	-	-	2	-	3	-	-
15												
Gen	-	-	-	1	2	3	-	-	1	-	-	3
Wood	-	-	-	-	-	-	3	2	2	1	-	-

1: solitary, parallel

2: associative, (transition?)

3: exchange, co-co

Table 14

Pre and Post X^2: # of Ss in Each Social Category

2x2 X^2: Pre or Post x Level: - Level 2-3

Setting	Pre Level 1	Pre Level 2-3	Post Level 1	Post Level 2-3	Sig. Level	X^2
Slide	9	1	8	6	nx	1.66
Sandplay	17	8	4	10	.01*	41.4
Blocks	13	9	16	17	ns	.59
Family	10	6	10	16	ns	<1
Water	16	4	3	10	.01*	8.25
Water, Blocks, Family	39	19	29	43	.01*	9.36
Sand, Slide	26	9	12	16	.05*	5.17
All Collapsed	65	28	41	59	.01*	>8

Music, Movement and Art are evaluated separately and in descriptive terms for the most part. Table 15 indicates the level of affect during the music session. The same categories are used here as in the previous affect evaluation scales for play settings. There seems to be little indication of any sort of trend in the level of affect in this activity.

It would be helpful to shorten the length of the music session which is too long for 3-4 year olds. There is not enough individualization or an allowance of the children to determine what activities will be chosen. For example, a child could be asked how does themusic make him feel? Table 16 indicates that most activity presented in this area is at lower levels where the children are merely expected to copy the teacher.

There seems to be too much emphasis on making children "pay attention", "sit still", and "do what the leading teacher is doing". Paraprofessionals spend most of their time telling children to obey and are very poor models. They themselves are Active Distractable or at a lower level. There are at least 2 adults and usually 4 in this session. Perhaps making smaller groups in different areas besides the conversation pit with different emphases would increase child as well as adult involvement and affect.

There is not time in which children rest quietly and a break from the hectic moving from free movement to lunch or music or movement might be helpful. On three ocassions our observers have seen children vomit during a music or movement session. It is believed that this is due to a situation where children do not rest after lunch but go directly into this strenuous activity.

Table 16 does indicate more exposure to higher level activities in the post testing.

Table 15

Description of Music Session

Affect Scales

(# of Ss in affect categories)

Affect

Onlooker Active or Passive		Active Distract.		Active Engrossed	
Pre	Post	Pre	Post	Pre	Post
2	-	2	3	2	12
	16				13
3		7		1	
9		3		-	
5		2		2	
4		4		-	

Table 16

Music Lesson Involvement Scale

(1-Examine, Repetition; 2-Combination, Transformation)

(Av. Proportion of Total Ss in Session Involved in Activity)

Pre		Post	
Level 1	2	Level 1	2
4/6	4/6	8/8	5/15
7/12	-	5/10	6/10
4/8	-		

Children were presented with a combination of Examine-Mastery (1) and Combination-Transformation (2) activities in the pre as well as the post test. The level of involvement in higher level activities is high. Only level 2 activities were presented in the post period and children did well. The level of pleasure in these sessions were always high, and it is subjective opinion that the children enjoyed these sessions very much. Although these sessions were good, they were at their best when the groups were smaller. Note the higher proportion of involvement when the groups are smaller in Table 18. It would also be helpful if the teachers felt freer to have the children rest. This period as the music is considered too long. Paraprofessionals here too are uninvolved, poor models and serve mainly as disciplinerians. This criticism can be made across all areas for the majority of the paraprofessionals. Many times teachers also have an associative type of interaction with the child. So that teachers range from associative to directive and there is little co-operative ch-ad interaction. In this same view, teachers and paraprofessionals tend to demonstrate rather than question or suggest activities for the child. In sum, teachers are too obedience and organizationally-oriented, and the school takes on a rushed, busy and sometimes hectic atmosphere.

Art

Ten paintings were randomly selected in the pre test period of Jan - Feb. In June the director was asked to supply us with the most recent easel art work of the ten pre test children.

Table 17

Movement Session

Affect Scale: # of Ss in each Affect Category

1 Onlooker Active/Passive		2 Active Distractable		3 Active Engrossed	
Pre	Post	Pre	Post	Pre	Post
2	2	6	4	2	5
1	-	6	-	3	-
2		6		4	

Table 18

Movement Session

(Av. Proportion of Total Ss in Session Involved in Activity)

Levels: 1 - Examines-Mastery, imitating movement

2 - Combination-Transformation, dances, pretends

Pre		Post	
Level 1	2	Level 1	2
6.5/7	6/7	-	8/11
8.5/10	9/10	-	8/14
7/8	55/8		
12/14	3/14		

Comment on Music

Many times, although the teacher was presenting the children only with the task of copying her, she would do this on an abstract level. For example, when telling them to ring a bell at a specific time in a record, she would shake her hand as if she had a bell instead of simply holding a bell, having the children imitate and then perhaps going on to this level if she felt they were ready.

In all areas there was little conscious awareness of the level at which material was being presented. It is this awareness and the communication of it to the paraprofessionals which might have served as one aspect of the in-session teacher training.

On the whole, children are less frightened, there are more dyads and groups, children know their teachers and other children's names. They are not afraid to approach an adult as they were in the pre test (Observers were more easily and freely approached during post test.). Some groups of children were not sampled due to the numerous organized activities they were involved in with a group teacher. It was noted that observers recognized certain children and not others ; upon inspection this would seem to indicate that children recognized by observers looking for self-sustained activities have teachers who are encouraging independence and vice versa.

Children seem to expect disapproval rather than approval in the pre test and would look at adults with a frightened and fearful look. This has been somewhat extinguished with the acquisition of the school's rule systems by the children.

Summary

Under the direction of a consultant who is an authority on young children's learning development through play activities, the project directors and the evaluators arranged to have the Block School's activities extensively filmed and the results analyzed. The first series of videotapes was made in January and February, the second in May and June. The result was a total of approximately 40 hours of tapes covering many aspects of the children's day in school. The study of this record concentrated on the youngsters' voluntary activities in terms of their effective play, affective involvement, and social interaction.

This chapter explains the method that the special consultant and his assistants employed and presents their appraisal of changes in the children's expressive, affective, and social behavior during the course of the spring term. The videotape team reported that their analysis yielded evidence of considerable improvements in some behaviors, and, equally importantly, identified certain other behaviors that did not show signs of improvement.

Description of the Videotape Study

Originally, the special consultant had planned to film random samples of the children in all the areas of the school, as shown in the floor plan on Page ○. He later found that the school had purchased fixed-tripod rather than portable equipment, however. The different floor levels of the school and its many partitions impeded quick movement of that camera. Therefore, the videotape team resorted to a strategy of sampling many settings within the school and based their study on children's behavior within those settings. Some preliminary tapes were made before those covered in this report. They reflected a period of habituation and territorial behavior that was judged to be more relevant to the stress involved in coming to a new setting rather than to the children's ability to function within this setting.

Some changes in settings were made between the first and second series of tapings. The mathematics area was not enclosed as such and became part

of the block area. A typewriter and a water tub were moved from one area to another. A "store" was added to the family life area.

The children were filmed during periods of both free movement and organized activities. The following list, "Videotape Sample Areas," shows the settings for the tapes and also the numbers of youngsters and adults who appeared in the tapes in each of the 15 settings as originally arranged.

Videotape Sample Areas

	Children	Adults
1. Cubbies	4	0
2. Bathroom	3	3
3. Lunchroom	4	2
4. Entrance hall	15	7
5. Rest area: bed & books	6	4
6. Steps: Activity 1 Activity 2 Activity 3	34	20
7. Mathematics	2	1
8. Blocks, ladder	17	5
9. Language: a. typewriter b. piano c. books	9	6
10. Conversation pit	11	5
11. Crafts: fine Hand movements	1	1
12. Family living: a. cooking b. dressing up c. table d. pillowed wall e. "house"	24	7
13. Art: a. easel b. sink c. tables (easel, family)	29	16
14. Science a. Sandboxes (large, small) b. animals c. plants d. tables	23	19
15. Movement a. carpentry b. block chairs c. tables d. Slide (top, under) e. Open area f. Gymn equipment	41	15

Levels of Behavior and Scoring Method

The videotape team classified the voluntary behavior to be appraised in four levels. The first level was examination of an object, scene, or other person, as when a child carefully looks at a toy bucket or feels it. The second level was repetition or mastery, such as occurs when a child handles an object or responds to a scene or person in a way that shows he has mastered appropriate action with the object or the right response, such as filling and emptying the bucket. The third level was combination, as evidenced by combining an activity or behavior with others, such as when a child uses a bucket to fill a hole in the sand. The fourth level was transformation, such as when a child pretends that what he is pouring from a bucket is icing for a cake.

While researchers who employ this classification system generally consider the sequence to be temporally hierarchial, such is not always the case. For instance, children often suspend a transforming operation for momentary examination. Most of the behaviors recorded on the Block School videotapes were of the later phases--combination and transformation. A typical example of a taped sequence is as follows: A child comes into the sandplay area, looks around, manipulates a little, and departs--examination. He fills and empties a pitcher over and over again--repetition or mastery. He pours sand from one pitcher to another and empties one by hitting the bottom--combination. He announces that his pitcher is a steam shovel and he is digging into a mountain--tranformation.

In scoring the children's behavior, the videotape team used random-order time sampling of 15 minutes per setting. Each child was scored only once, at his highest level of performance. The scores of children filmed on the first series of tapes were then compared with those of youngsters in the same area during the second series.

Ratings of Children's Behavior

The taping times in the various settings were comparable in both series, considering the changes in areas that were made during the course of the year. Scorable time was calculated for each of the settings--none was included for cubbies, bathroom, or lunchroom--and the results are shown in Table

TABLE

Scorable Video Observation Time

Setting	Time in Minutes Jan.-Feb.	May-June
Waterplay	40	35
Blocks	31	30
Family life	30	35
Sand play	30	35
Slide	30	40
Typewriter	10	moved location
Entrance	10	always empty
Steps		
General	20	25
Store	non-existent	25
Language	always empty	10
Conversation pit	always empty	25
Movement room		
General	30	10
Woodwork	always empty	15

Not all the areas yielded information equally suitable for scoring. Where traffic was heavy and the children were easily distracted, very low frequencies of scorable time were registered. Children enjoyed the store, but the tapes showed a low level of play and social interaction there, as well as high distractibility. In an enclosed area, the video-recorders suggested, the store would have been more successful. This was an instance where the importance of the environmental setting for evoking a particular type of activity was evident.

In some areas, school staff clearly directed children into organized activities berore the youngsters had opportunities to become involved in the voluntary ones. Children were not observed in the entrance area on the May-June tapes, perhaps because they had less desire to remain near the exit as they grew accustomed to their surroundings. In general, these later tapes show fewer children lingering aimlessly in the public areas than did the January-February series. Early in the term, teachers seemed to favor the conversation pit, but later, perhaps because it was labeled for music or because the teachers were uncomfortable there for some reason, children went

there voluntarily in small groups for physical activities such as running around the rim, jumping, and cuddling. When an adult appeared, the children seemed not to be sure they were permitted to have fun.

Only five settings produced enough scores for reliable analysis. These were waterplay, blocks, family life, sandplay, and the slide. In the others, frequencies were too few in one or both series to warrent comparisons between behavior at the beginning of the semester and at its end. The distribution of the scores at the five settings and the X^2 values for tests of the statistical significance of the changes between the two observational periods are shown in Table

TABLE

Comparison of "Pre-" and "Post-" Distributions
of
Activity Ratings, by Settings

Setting	Period	1 Examination	2 Repetition	3 Combination	4 Transformation	Total
Waterplay	Jan-Feb	0	13	6	2	21
	May-June	0	1	4	7	12
		X^2= 6.9, significant at .01 level				
Blocks	Jan-Feb	6	9	2	1	18
	May-June	2	9	8	8	27
		X^2= 22.9, significant at .01 level				
Family Life	Jan-Feb	8	7	3	3	21
	May-June	3	4	4	10	21
		X^2= 4.7, significant at .05 level				
Sandplay	Jan-Feb	6	9	2	3	20
	May-June	1	7	0	5	13
		X^2= .19, not significant				
Slide	Jan-Feb	0	2	7	2	11
	May-June	0	5	18	6	29
		X^2= .18, not significant				

In three areas where comparison between earlier and later behavior was most justified--waterplay, blocks, and family life--the evaluators found a significant shift from the lower levels to the higher. Behavior at the slide in January and February was rated high, and one reason why the scores did not rise was that so many children wished to use it that teachers curtailed the play, giving out tickets and having the children form lines. Behavior during sandplay was rated low in January and February, as well as in May and June. The tapes showed little productive teacher interaction with children in sandplay except for praise when a child displayed his work.

Affective Level of Involvement

Children were also scored on a three-point scale for their degree of affective involvement in the various activities portrayed on the tapes. At the lowest end of the scale were the passive behaviors such as withdrawal, unwillingness to participate, or indications of fear, and the onlooker role. The middle ranking was applied to active but distractible participants--children who went in and out of play. The highest level was accorded to actively engrossed participants.

TABLE

Comparison of "Pre-" and "Post-" Distributions of Affective Ratings, by Settings

Setting	Period	1-2 Passive or Active but Distractible	3 Actively Engrossed	Total
Waterplay	Jan-Feb	13	4	17
	May-June	4	9	13
Blocks	Jan-Feb	13	7	20
	May-June			
Family Life	Jan-Feb	12	7	19
	May-June	10	15	25
Sandplay	Jan-Feb	18	8	26
	May-June	6	5	11
Slide	Jan-Feb	4	14	18
	May-June	2	9	11

Note: None of the differences between the "pre-" and "post-" distributions was significant.

In calculating the statistical significance of the changes between the first and second series of tapings, the lower and middle levels were combined, since the evaluators planned to test these against the highest level. The data for the affective involvements which were recorded with high enough frequencies to justify "pre-" and "post-" comparisons are summatized in Table In almost every case, the trend was toward being more engrossed in the activity, but many children remained passive onlookers or distractible. In no single instance, however, was the upward trend statistically significant.

Social Interaction

Another three-point scale was used to rate children's social interaction. Solitary indicated activity apart from others, whether the child was alone or alongside of others. Associative was applied to children who acted with others. Exchange was the designation for those who actively shared and cooperated with each other in role reciprocity. The ratings and statistical significance of the differences between the "pre-" and "post-" ratings are shown in Table The second and third levels were combined in the statistical analysis because both were social exchange categories, as compared to the primitive behavior represented by the first category.

TABLE

Comparison of "Pre-" and "Post-" Distributions
of
Social Interaction Ratings, by Settings

Setting	Period	1 Solitary Parallel	2-3 Associative, Exchange	Total
Waterplay	Jan-Feb	16	4	20
	May-June	3	10	13
	X^2= 8.3, significant at .01 level			
Blocks	Jan-Feb	13	9	22
	May-June	16	17	33
	Difference not significant			
Family Life	Jan-Feb	10	6	16
	May-June	10	16	26
	Difference not significant			
Sandplay	Jan-Feb	17	8	25
	May-June	4	10	14
	X^2= 41.4, significant at .01 level			
Slide	Jan-Feb	9	1	10
	May-June	8	6	14
	Difference not significant			